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October 3, 2013

To whom it may concern,

As a professional mathematician, and faculty member in the Department of Mathematical Sciences at the university of Wisconsin-Milwaukee (UWM), I wish to state my strong support for Wisconsin's adoption of the Common Core State Standards for Mathematics (CCSSM). In particular, I want to emphasize the high level of mathematical rigor exemplified by these standards. The following points seem to me to be important:

1. We know that what we have been doing in the past does not work. Nationwide, nearly 60% of first-year college students require remedial coursework in either English or mathematics.[1] For many of these students, completing their remedial mathematics (that is to say, high school mathematics) requirement will be a significant challenge on their path to their chosen college degree. The situation in Wisconsin mirrors the national one. At UWM, for example, over 40% of our incoming freshmen are placed in non-credit mathematics courses, and this is despite the fact that UWM awards college credit for a course (MATH 105, Intermediate Algebra) which covers no material beyond the level of a high school Algebra II course.

2. The CCSSM set a high, but realistic, level of expectations for *all* students. It is unrealistic, and unnecessary, to expect all students to master calculus (for example) in high school. That would be the "one size fits all" approach that is often brought up as an argument against the Common Core. Instead, the CCSSM attempts to identify a coherent set of mathematical topics of which it can be reasonably said that they are essential for students' future success in our increasingly technological and data-driven society. "College and career ready," yes, but also life and citizenship ready.

3. It is easy to point to a certain favorite topic and say the the Common Core delays discussion of that topic, or places it in a grade level higher than it has been taught previously. It is also dangerous. There is no merit in placing a topic at a grade level where students are unable to do more than repeat procedures without understanding or reasoning.

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[1] *Beyond the Rhetoric: Improving College Readiness Through Coherent State Policy,* accessed from www.highereducation.org/reports/college_readiness/gap.shtml on October 3, 2013.

(One example would be the all-too-frequent expectation that students compute means and medians of sets of numbers, with no significant connection to context, and no discussion of when it would make sense to use one rather than the other.) It is necessary to look at any set of standards as a coherent whole, and ask whether students who meet

all expectations of the standards have been held to a sufficiently high level.

4. Any set of standards is a floor, not a ceiling. Any school district, school or individual teacher may set expectations beyond the standards, if they choose to do so. Indeed, there will be students who will need more mathematics in high school than is required by the CCSSM. Those students should indeed take more mathematics, and opportunities should be made available for them to do so. The question is whether *all* students should be required to learn more mathematics than is in the CCSSM; my answer is "no."

5. Even for talented students, the rush to learn advanced topics and procedures should not be allowed to get in the way of deep understanding of the topics covered.

6. After a discussion with my colleagues in a UWM Department of Mathematical Sciences executive committee meeting earlier this week, they expressed agreement with the points made above. There are undoubtedly some professional mathematicians who claim that the CCSSM are insufficiently rigorous; I believe they are a small minority.

Sincerely,

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